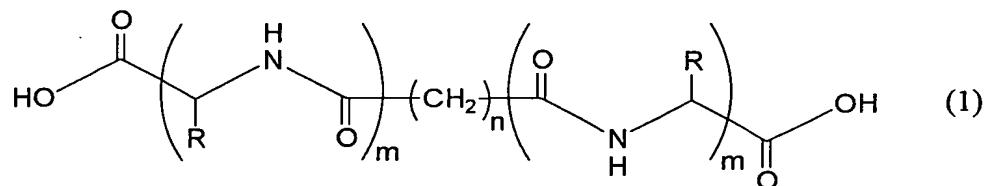


ABSTRACT

The present invention relates to a fine spherical particle having uniform molecular orientation having uniform molecular orientation, which is useful in fine chemical fields or electronic and information fields, such as a functional material and a medical material, using membrane formation of a bicephalic compound; a spherical microcapsule encapsulating a hydrophilic core substance; and a process for producing the same. The fine spherical particle can be produced by immersing a substrate having hydrophilicity in an aqueous solution of a salt of the compound represented by the following formula (1) to precipitate the fine particle under an acidic atmosphere.



wherein R represents a hydrogen atom or an alkyl group having 1 to 5 carbon atoms; n is an integer of 8 to 20; and m is an integer of 1 to 3. The spherical microcapsule encapsulating a fine particle of a hydrophilic core substance is produced by immersing a substrate having hydrophilicity in an aqueous solution in which a metal salt of the compound represented by formula (1) and the hydrophilic core substance are dissolved; and allowing the aqueous solution to stand under an acidic atmosphere to precipitate the fine particle. The resulting fine spherical particle and the spherical microcapsule has a particle diameter of 0.01 to 100  $\mu\text{m}$ .

(12)特許協力条約に基づいて公開された国際出願

(19) 世界知的所有権機関  
国際事務局



(43) 国際公開日  
2004年4月15日 (15.04.2004)

PCT

(10) 国際公開番号  
WO 2004/031214 A1

(51) 国際特許分類<sup>7</sup>: C07K 5/00.  
1/04, A61K 47/48, 9/50, 7/00

(21) 国際出願番号: PCT/JP2003/012636

(22) 国際出願日: 2003年10月2日 (02.10.2003)

(25) 国際出願の言語: 日本語

(26) 国際公開の言語: 日本語

(30) 優先権データ:  
特願2002-293533 2002年10月7日 (07.10.2002) JP  
特願2003-160291 2003年6月5日 (05.06.2003) JP

(71) 出願人(米国を除く全ての指定国について): 独立行政法人産業技術総合研究所 (NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY) [JP/JP]; 〒100-8921 東京都千代田区霞が関1丁目3番1号 Tokyo (JP).

(72) 発明者; および  
(75) 発明者/出願人(米国についてのみ): 松澤 洋子 (MATSUZAWA,Yoko) [JP/JP]; 〒305-8565 茨城県つくば市東1-1-1 中央第5独立行政法人産業技術総合研究所内 Ibaraki (JP). 松本 瞳良 (MATSUMOTO,Mutsuyoshi) [JP/JP]; 〒305-8565 茨城県つくば市東1-1-1 中央第5独立行政法人産業技術総合研究所内 Ibaraki (JP). 小木曾 真樹 (KOGISO,Masaki)

(81) 指定国(国内): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

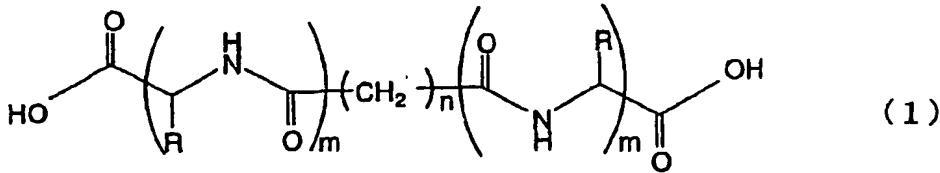
(84) 指定国(広域): ARIPO特許 (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), ユーラシア特許 (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), ヨーロッパ特許 (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI特許 (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

添付公開書類:  
— 國際調査報告書

2文字コード及び他の略語については、定期発行される各PCTガゼットの巻頭に掲載されている「コードと略語のガイドスノート」を参照。

(54) Title: FINE SPHERICAL PARTICLES WITH SATISFACTORY MOLECULAR ORIENTATION, SPHERICAL MICROCAPSULES COMPRISING THE SAME, AND PROCESSES FOR PRODUCING THESE

(54) 発明の名称: 分子配向の揃った球状微粒子、それを用いた球状マイクロカプセル及びそれらの製造方法



(57) **Abstract:** Fine spherical particles with satisfactory molecular orientation which are based on film formation of a bola-form compound and are useful in the field of fine chemicals such as functional materials and medical materials, the electronic/information field, etc.; spherical microcapsules having a hydrophilic core substance encapsulated therein; and processes for producing the spherical particles and the microcapsules. The fine spherical particles can be produced by immersing a hydrophilic substrate in an aqueous solution of a salt of a compound represented by the following general formula (1) and precipitating fine particles in an acid atmosphere. (1) (In the formula, R represents hydrogen or C<sub>1-5</sub> alkyl; n is an integer of 8 to 20; and m is an integer of 1 to 3.) The spherical microcapsules having a hydrophilic core substance encapsulated therein can be produced by immersing a hydrophilic substrate in an aqueous solution of both a salt of a compound represented by the general formula (1) and a hydrophilic core substance and precipitating fine particles in an acid atmosphere. The fine spherical particles and spherical microcapsules obtained have a particle diameter of 0.01 to 100 μm.

(続葉有)

WO 2004/031214 A1